

Claims

1 1. A gas delivery system comprising:
2 a first stage compressor pressurizing an inlet gas to between 90 and
3 500 psig;
4 a first absorption bed comprising a molecular sieve material in fluid
5 communication with said first stage compressor, said absorbent bed enriching
6 an exiting gas stream in at least one inlet gas component;
7 a second stage compressor immersed in a liquid heat transfer fluid,
8 compressing the exiting gas stream to a pressurized gas stream having a
9 pressure of between about 5000 and 10,000 psig;
10 a cascade system for storing the pressurized gas stream at a pressure
11 between about 3500 and 5000 psig;
12 a control system in operational control of at least one of said first stage
13 compressor, said absorbent bed, said second stage compressor and said cascade
14 system; and
15 an outlet for delivering said pressurized gas stream.

1 2. The gas delivery system of claim 1 wherein said molecular sieve
2 is type 5A and said at least one inlet gas component is oxygen.

1 3. The gas delivery system of claim 1 further comprising a
2 blending valve interspersed between said absorbent bed and said second stage

3 compressor for delivering in combination the exiting gas stream and the inlet
4 gas.

1 4. The gas delivery system of claim 1 further comprising at least
2 one monitoring device selected from the group consisting of: pressure gage,
3 oxygen concentration gage, and thermocouple, coupled to said cascade system
4 and providing data to said control system.

1 5. The gas delivery system of claim 1 further comprising a
2 blending valve in fluid communication with said outlet and the inlet gas for
3 delivering in combination pressurized gas stream and outlet gas.

1 6. The gas delivery system of claim 1 further comprising a second
2 absorption bed.

1 7. The gas delivery system of claim 6 wherein the first absorption
2 bed is connected in series with the second adsorption bed.

1 8. The gas delivery system of claim 6 wherein the first absorption
2 bed is connected in parallel with the second adsorption bed.